					<u> </u>		á				
Work Orde September-23-13				*407	<u> </u>						Page I
Revision ID:	546.3513 Strut		A	Accept	*N900	<u>040</u>	100)* ፡	Setup Sta	1 /	S1* S2*
Start Date: S Required Date: S Reference:	9/23/13 9/23/13	Start Qty: 6.00 Req'd Qty: 6.00	*6* *6*		Cust Item ? Customer:	ID:					
		in: MC5		Tooling: SPC (Y/N):		ate:]	Run Sta Sto	op	IR1* IR2*
Sequence ID/ Work Center ID		Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp.
Draw Nbr 646.3500		C (ECN) UR	er attacker								
*110 *110* Waterjet		Memo		0.00				6	0		A
FLOW CNC Waterjet	t		3500 plate 2.00"X 2.00" as p W/C M/C	oer Dwg							3.11-1
		2-Deburr if									
*120 *120*		QC2- Inspect parts off r	nachine FAI/FAIB	0.00				6	0_		Au
Quality Control	r	Memo		5.50							13.11:5

					WORK ORDER NON C	ONEOD	8448ICE / III	DATE	DQA:	Date:	
NCR: Yes	/ No				WORK ORDER NON-C	ONFOR	IVIANCE / UI		QA Closed:	Date:	
Work Order:					DISPOSITION			AGAINST DE	PARTMENT	/PROCESS	
Part No.					Rework Scrap Use-as-is	Ther	Skid-tube Machining moforming	Crosstube Small Fab Finishing	1	Water Jet d. Eng. Coor. re/Packaging	Engineering Quality Other
NCR No.	·		·		Work Order Update		Large Fab	Composite		Supplier	
Root				Descri	ption of work order update	Initial	A	ction	Sign &		-
Cause	Date	Step	Qty	,	or Non-conformance	Chief Eng	Des	cription	Date	Verification	QC Inspector
Doc/Data											
Equip/Tooling						ĺ			<u> </u>		
Operator							1				
Material											
Setup	ļ									Ì	
Other	1						1				
Process]										
Supplier											

Landin	g Gear	General	 _	 _	 _
ſ	Bending	Bend	Grain	Ovalized	Pressure/Forced
	Centre Not Concentric to O/S	BOM/Route	Hardware	Over/Under tolerance	Temperature/Cure
[Cracks	Broken/Damaged	Inspection Incomplete	Part Incorrect	Weld
	Crushed/Crimped	Burrs	Instructions Incomplete/Unclear	Part Lost/Missing	Wrong Stock Pulled
	Cuffs	Contamination	Maintenance	Part Moved	 _
	Heat Treat	Countersink	Mislabeled	Positioned Wrong	 _
	Inspection Strip in Tube	Cut Too Short	Misread	Power Loss/Surge	Other
	Ripples in Bend	Drill Holes	Offset	_	
	Torque Waves in Extrusion	Drawing	Out of Calibration		
	Turning Sequence	Finish	Out of Sequence		
Γ	Wave/Twist in Tube	Folio	Outside Dimensions	-	

FAULT CATEGORY

Training Unapproved

Work Ord September-23-			k 144	*107	298*						Page 2
Item ID: Revision ID: Item Name: Start Date: Required Date	646.3513 U/R Strut 9/23/13 29/23/13	Start Qty: 6.00 Req'd Qty: 6.00	*6* *6*	Accept	*N900 Cust Item I Customer:		100)*	Setup St		JS1* JS2*
Reference:		110q u Qiji 0.00	"h"		Customer.		_ **		.		;
Approvals:	Process P	lan:	Date:	Tooling: SPC (Y/N):		ate:				tart * top *	NR1* NR2*
Sequence ID/ Work Center	ID	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty		Insp.
130 *130*		QC8- Inspect parts - seco	ond check	0.00 DAS 27 9-89				6			· ·
QC Quality Control		Memo		0.00 13/1-4							
140				0.00				6		13-	11-21
140 Small Fab		Memo 1 - Fabricate	tube as per dwg	0.00					<u></u> . <u></u>		
150		QC5- Inspect part comp	leteness to step on W/O	0.00							Das 9
150		Memo		0.00					13-	11.91	9-89

Quality Control

•		D	QA:	Date:	•
NCR: Yes / No	WORK ORDER NON-CONFORMANCE / UPDATE				
				A 4	

											QA Closed:	Date:	
Work Orde	er:					DISPOSITION			=====	AGAINST DE	PARTMENT	/PROCESS	
Part N NCR N	- ۱٥٠					Rework Scrap Use-as-is Work Order Update			Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite	-1	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root					Descri	ption of work order update	I	nitial	Ac	tion	Sign &		
Cause		Date	Step	Qty		or Non-conformance	Ch	ief Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data										-			
Equip/Tooling							1						
Operator													
Material													
Setup					·								
Other					i								
Process							İ						
Supplier													
Training													
Unapproved													
						F	AUL	T CATE	GORY				
Landi	ng (Gear			_	General		-			7	_	3
		Bending			ļ	Bend		Grain		<u> </u>	Ovalized		Pressure/Forced
		Centre No	ot Concei	ntric to	o/s	BOM/Route		Hardwa	are		Over/Under		Temperature/Cure
		Cracks				Broken/Damaged	_	4	ion Incomplete		Part Incorre	-	Weld
		Crushed/	Crimped		<u> </u>	Burrs		Instruct	tions Incomplete/	'Unclear	Part Lost/Mi	issing	Wrong Stock Pulled
		Cuffs				Contamination	<u>_</u>	4	enance	<u> </u>	Part Moved		
		Heat Trea	at		_	Countersink		Mislabe	eled	L	Positioned V		_
	_	Inspectio	n Strip in	Tube		Cut Too Short	\vdash	Misrea	d		Power Loss/	Surge	Other
	$ldsymbol{ld}}}}}}}$	Ripples in	Bend		<u> </u>	Drill Holes		Offset					
	L	Torque W	Vaves in E	Extrusio	n ∟	Drawing	L	4	Calibration				
	L	Turning S				Finish		-	Sequence				
		Wave/Tw	ist in Tul	эе		Folio	1	Outside	e Dimensions				

Work Ord September-23-				*107	7298*							Page 3
Item ID: Revision ID: Item Name:	646.3513 U/R Strut			Accept	*N9000	140	100)*	Setup	Start Stop	*N.9	S1* S2*
Start Date: Required Date Reference:	9/23/13 e: 9/23/13	Start Qty: 6.00 Req'd Qty: 6.00	*6* *6*		Cust Item ID: Customer:	:					, 4,	
Approvals:	Process P	lan:	Date:	Tooling:	Date	e:			Run	Start	*NF	R1 *
	QC:		Date:	SPC (Y/N):	Date	e:				Stop	*NF	₹2*
Sequence ID/ Work Center	ID	Operation Description		Set Up/ Run Hours	Tool ID		Plan Code	Accep Qty	ot Re Qt	•	Reject Number	Insp. Stamp
160		Weld per dwg A/R Alu	minum rod Batch: MIQ	505 ¥0.00						12		
160 Large Fab		Мето		0.00			×	66		13-	11-3	11 M
Large Fab			o plate as per dwg. DT986 ere tube is punch.	8								!
170		QC9- Inspect visual per	QSI004- Fusion Welds	0.00		i						DAS 9
*17 0 *		Мето		0.00				(<u></u>	13-11	16-1	9-89
Quality Control												***
180		QC5- Inspect part comp	leteness to step on W/O	0.00								9 9 9-89
180		Memo		0.00					(<u>)</u>	13-1	11.90	

Quality Control

										DQA:	Date:	
NCR: Y	es / Ne)			WORK ORDER NON-O	CONF	ORN	MANCE / UPDAT		QA Closed:	Date:	
Work Orde	···				DISPOSITION			A	GAINST DEF			
Part N					Rework Scrap Use-as-is		ı	//achining Sr	osstube mall Fab Finishing		Water Jet d. Eng. Coor. re/Packaging	Engineering Quality Other
NCR I	No				Work Order Update]		Large Fab Co	mposite		Supplier	
Root				Descri	ption of work order update	lni	tial	Action		Sign &		
Cause	Date	Step	Qty	,	or Non-conformance	Chie	f Eng	Description	n	Date	Verification	QC Inspector
Doc/Data												
Equip/Tooling						1						
Operator		4					i					
Material					•							
Setup												
Other												
Process												
Supplier			1									
Training												
Unapproved			-			<u> </u>						
					F	AULT	CATE	GORY				
Landi	ng Gear		t		General						·	_
	Bendii	ng			Bend	∐G	irain			Ovalized		Pressure/Forced
	Centre	Not Conce	entric to	O/S	BOM/Route	Шн	lardwa	re	· L	Over/Under	tolerance	Temperature/Cure
	Cracks	i			Broken/Damaged	∐ lr	rspecti	on Incomplete		Part Incorred	ct	Weld
	Crush	ed/Crimped	l		Burrs	L Ir	nstruct	ions Incomplete/Unclea	ar 🔃	Part Lost/Mi	ssing	Wrong Stock Pulled
	Cuffs				Contamination		/lainte	nance		Part Moved		
	Heat 1	reat			Countersink	\[\bigvert \text{\chi}	/lislabe	led		Positioned V	Vrong	

Misread

Out of Calibration

Out of Sequence

Outside Dimensions

Offset

Other

Power Loss/Surge

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Inspection Strip in Tube

Torque Waves in Extrusion

Cut Too Short

Drill Holes

Drawing

Finish

Folio

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Work Ord September-23-1				*107	7298*						Page 4
Item ID: Revision ID: Item Name: Start Date:	646.3513 U/R Strut 9/23/13	Start Qty: 6.00	*6*	Accept	*N900		100)* 5	Setup Star Stop	1 4	S1* S2*
Required Date: Reference:	: 9/23/13	Req'd Qty: 6.00	*6*		Customer:						
Approvals:		lan:		Tooling: SPC (Y/N):		ate:		Ĭ	Run Star Stoj	1/1	R1* R2*
Sequence ID/ Work Center I	D	Operation Description	A	Set Up/ Run Hours	Tool ID	Tool#	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
*220 *20 *20 *SprayPaint Spray Painting		Memo Prime as pe	r dwg (see note 3)	0.00				6	<u>Ø</u>	_ Ø	AJ 13-12-2
		Batch:	27401								
²³⁰ *230*		QC14- Inspect Spray Pa	int ,	0.00				6			1085 13.1
QC Quality Control		Memo		0.00							
240				0.00							מ

13/1/

IDENTIFY AS PER APICAL MPP-120 BY STAMPING THE P# AND REV

\$\mathcal{F}\$ 523 \text{\text{\text{\text{\text{P}}}}\$}

0.00

240 Packaging

Packaging

								DQA:	Date:	•
NCR: Yes	/ No			WORK ORDER NON-	CONFOR	MANCE / UP		QA Closed:	Date:	
Work Order:				DISPOSITION			AGAINST DE	PARTMENT	/PROCESS	
Part No.				Rework Scrap Use-as-is Work Order Update	i	Skid-tube Machining moforming Large Fab	Crosstube Small Fab Finishing Composite		Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root				Description of work order update	Initial	Ac	ction	Sign &		
Cause	Date	Step	Qty	or Non-conformance	Chief Eng	Desc	cription	Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training										

			FAU	LT CATEGORY		
Landing	Gear	General				
	Bending	Bend		Grain	Ovalized	Pressure/Forced
	Centre Not Concentric to O/S	BOM/Route		Hardware	Over/Under tolerance	Temperature/Cure
	Cracks	Broken/Damaged		Inspection Incomplete	Part Incorrect	Weld
	Crushed/Crimped	Burrs		Instructions Incomplete/Unclear	Part Lost/Missing	Wrong Stock Pulled
	Cuffs	Contamination		Maintenance	Part Moved	_
	Heat Treat	Countersink		Mislabeled	Positioned Wrong	
	Inspection Strip in Tube	Cut Too Short		Misread	Power Loss/Surge	Other
	Ripples in Bend	Drill Holes		Offset		
	Torque Waves in Extrusion	Drawing		Out of Calibration		
	Turning Sequence	Finish		Out of Sequence		
	Wave/Twist in Tube	Folio		Outside Dimensions		

Unapproved

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Work Order ID 107298 September-23-13 11:47:27 AM				*107	7298*							Page 5
Item ID: Revision ID: Item Name:	646.3513 U/R Strut		er er er i innenne er i innen er	Accept	*N900	040	100	*	Setup	Start Stop	1.4	S1* S2*
Start Date: Required Date Reference:	9/23/13 : 9/23/13	Start Qty: 6.00 Req'd Qty: 6.00	*6* *6*		Cust Item I Customer:	D:						
Approvals: Process Plan:QC:		Date:	Tooling: SPC (Y/N):	1.	ate:			Run	Start Stop	*N *N	R1* R2*	
Sequence ID/ Work Center I	D	Operation Description OC21- Final Inspection -	Work Order Release	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Rej Qty		Reject Number	Insp. Stamp
250		Memo		0.00					13	1/12	104	4

Quality Control

Mr. 183

DQA:	Da	ate:	•

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

	,									QA Closed:	Dat	e:
Work Ordei	r·				DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Part No					Rework Scrap]		Skid-tube Machining	Crosstube Small Fab	Pro	Water Jet d. Eng. Coor.	Engineering Quality
NCR N	o				Use-as-is Work Order Update			noforming Large Fab	Finishing Composite	Rec/Stor	re/Packaging Supplier	Other
Root		I		Descri	ption of work order update	Ir	nitial	Ad	ction	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chi	ef Eng	Desc	cription	Date	Verification	n QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training												
Unapproved		L	<u> </u>			ALILI	T CATE	GORY		<u> </u>		
Landin	g Gear				General	AUL	CAIL	JONT				
	Bending Centre No Cracks Crushed/ Cuffs Heat Trea	Crimped	ntric to (o/s	Bend BOM/Route Broken/Damaged Burrs Contamination Countersink			ion Incomplete tions Incomplete enance	/Unclear	Ovalized Over/Under Part Incorred Part Lost/Mi Part Moved Positioned V	ct issing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled
	Inspectio	n Strip in	Tube		Cut Too Short		Misread	d		Power Loss/	Surge	Other
	Ripples in				Drill Holes	\vdash	Offset					
	Torque V			՝ _	Drawing	\vdash		Calibration				
	Turning S				Finish	-		Sequence				
	Wave/Tw	ist in Tul	be	f	Folio		Outside	Dimensions				

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Picklist Print

September-23-13 11:47:26 AM

Work Order ID:

107298

Parent Item:

646.3513

Parent Item Name:

Strut

Start Date: 9/23/13

Required Date: 9/23/13

Page 1

Start Qty: 6.00

Required Qty: 6.00

Comments:	IPP REV:A 12.10	.19 NEW ISSUE	E DD VE	ERF:JLM									
Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M304S12GA 304/316 0.100" Sheet		Purchased	No				sf	138.0000		0.17684	21	Au 1	3.11.0
				Location		Loc Qty	Lo	c Code					
				MAT		0.6							
				113	3077	0.6							
				MAT019		137.4							
				113	3062	76.4				<u> </u>		. 17	
				ml	26309	61			191	6309		. 1 (
M304TR0.500W.049 304 RD Tube .500 x .049	· W	Purchased	No	*			f	332.9387		6.31578	95		
				Location	-	Loc Qty	<u>Lo</u>	c Code		•			
				GA		43.66				·			
				120	0633	43.66							
				MAT017		289.278716							
				119	9087	0.000016							
					3449	86.0547							
					5513	26.534			× .				
					26466-/5	176.69				13-	11-1	1	MA A.

										DQA:	Da	ite:	•
NCR:	res / f	lo			WORK ORDER NON-	COI	NFOR	MANCE / UPDATE					
					_					QA Closed:	Da	ite:	
Work Orde	or·				DISPOSITION			AGAINST	DE	PARTMENT	PROCESS		
Work Orac					Rework	7		Skid-tube Crosstube	Г	1	Water Jet	П	Engineering
Part N	No.				Scrap	1	1	Machining Small Fab	-	Pro	d. Eng. Coor.	\vdash	Quality
					Use-as-is	1		noforming Finishing		4	re/Packaging	-	Other
NCR N	No				Work Order Update]		Large Fab Composite		1	Supplier		
							<u> </u>	<u> </u>					
Root				l .	ption of work order update		Initial	Action		Sign &		1	
Cause	Da	te Step	Qty		or Non-conformance	Cr	nief Eng	Description		Date	Verification	n	QC Inspector
Doc/Data						1						ŀ	
Equip/Tooling	Ш		1										
Operator												l	
Material	Ш												
Setup						1						l	
Other													
Process	<u> </u>												
Supplier					•							l	
Training	Ы												
Unapproved	<u> </u>						T 64TF	CODY				1	
						AUI	LT CATE	GORY					
Landi	ng Gear	·		F	General	_	Grain]			D
	Bend	_		o/s	Bend BOM/Bouts	\vdash	-1		\vdash	Ovalized	*-1	\vdash	Pressure/Forced
		e Not Conce	entric (O	₩	BOM/Route	\vdash	Hardwa		-	Over/Under		1	Temperature/Cure
	Cruc		1	-	Broken/Damaged	-	-1 `	ion Incomplete	-	Part Incorred		\vdash	Weld
	Cuffs	ned/Crimped	ı	-	Burrs	\vdash	Mainte	cions Incomplete/Unclear	\vdash	Part Lost/Mi Part Moved	22111B	Ш	Wrong Stock Pulled
	\vdash	Treat			Countersink	-	Mislabe		-	Positioned V	Vrong		
I .	i ineat	reat			ICOUNTERSINK		HMISIADE	elea	1	TPositioned v	vrong		

Misread

Out of Calibration

Out of Sequence

Outside Dimensions

Offset

Power Loss/Surge

Other

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Inspection Strip in Tube

Torque Waves in Extrusion

Cut Too Short

Drill Holes

Drawing

Finish

Folio

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ENGINEERING CHANGE NOTIC. NO. SHEET _ OF 1 02440 EFFECT ON DWG INC. INC. PREPARED DATE 106/08/09 646.3500 REV: NC S. HUFF DWG NO. APICAL DWG TITLE: INDUSTRIES, INC APPROVED BY ENGR QC EFF: MFG CURRENT ORDER AND STOCK REASON: REVISED GEOMETRY TO ACCEMODATE NEW EXISTING AIRCRAFT PROVISIONS TRANSACTION CODES (TC)-A-ADD C-CREATE R-REVISE D-DELETE A-ADD R-REVISE SHEET 2 IS (8 25) 7.60 107298 MLJ 13-09-25 100 -00.5 -(551)-CHANGE CATEGURY
☐ INSTALL INSTRUC ☐ ICA ☐ FMS ☐ BOM ☐ MAJOR ☒ MINOR DER REVIEW REQUIRED DOCUMENTS EFFECTED: ☐ YES ⊠ N□

des	ENGINEERING CHANGE N	NOTICE NO.	02197	SHEET 1- OF 1
APICAL	DWG NO. 646.3500 RE	VIN/C PREPARED S.	HUFF DATE: 01/0	05/09 EFFECT ON DWG
INDUSTRIES, INC.	DWG TITLE:	STRUT	\bigcap	
TREE TREE TREE	APPROVED BY	MFG/ lake	OC STATE	EFF: NEXT ORDER
TRANSACTION CODES (TC) A-ADD C-CREATE R-REVISE D-DELETE	REASON: REVISED ANGLE OF	646.3512 & 646.3513	FOR BELDER PINMENT	
SHEET 2, IS		200	646 3512 SHDWN 646 3513 OPPOSITE .10 393' ANGE CATEGORY DER I	REVIEW REQUIRED
DOCUMENTS EFFECTED	☐ MDL ☐ INSTALL INSTRUC ☐] ICA □ FMS □ BOM 👸		YES X ND

. . .

Linda Lacelle

4.0

From:

Pablo Bravo

Sent:

September-13-13 12:11 PM

To:

Jean-Luc Menard

Cc:

Linda Lacelle

Subject:

Re: STRUTS 646.3500

JL,

Go ahead and manufacture the parts you need to replenish stock. I'll try to get a date for the drawing release ASAP.

Pablo

On Sep 13, 2013, at 8:31 AM, "Jean-Luc Menard" < imenard@dartaero.com > wrote:

Hi Pablo,

As discussed yesterday, dwg's are under review.

Just need your blessing so we can manufacture to meet current orders.

THX

JL

Jean-Luc Ménard

Production Engineering Supervisor

DART AEROSPACE

T 1613 632-5200 > 227

F 1 613 632-5246

1 800 556- 4166

www.dartaerospace.com

<image001.png>

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DART AEROSPACE LTD	Work Order:	107298
Description: Strut	Part Number:	646.3513
Inspection Dwg:646.3500 Rev: N/C		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tolerance		Actual Dimension	Accept	Reject	Method of Inspection	Comments
2.00"	T/ 10	.3u	2.01	(V	Jkm.01
2.00"	+11 (03ა		1		V	
,100"		080	.101			v	
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·							
				DAS		<u> </u>	

Measured by:

Date: 13 11 02

Audited by: 27 9-89

Date: 13 11 02

Date: Date: Date:

Rev	Date	Change	Revised by	Approved
E	10.04.14	Added preliminary approval	KJ	